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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,096	02/08/2001	Shi-Tron Lin	B-4101 618582-4	5687

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EXAMINER

NADAV, ORI

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 01/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 09/779,096	Applicant(s) LIN ET AL.	
	Examiner ori nadav	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 11, 12, 14-30, 32-34 and 38-74 is/are pending in the application.
- 4a) Of the above claim(s) 5-7, 11, 12, 15-30, 32 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 14, 34 and 38-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 39, 48-51 and 60 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

1. Figure 2 depicts a DC connection VDD to the first node and the pad.

There is no support in the specification for a device comprises no DC connection to the first node, and no DC connection between the first doped region and the pad, as recited in claim 39.

2. There is no support in the specification for an electrically floated second doped region (that is, a region having no external electrical connections) being coupled to a capacitor, as recited in claim 60.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

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4. Claims 34, 35, 37, 39 and 60 are rejected under 35 U.S.C. ' 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The claimed limitations of "there is no DC connection between the first doped region and the pad", as recited in claim 39, are unclear as to what is meant by a DC connection between two elements, since DC connection is the coupling of an element to a power source.

6. The claimed limitations of an electrically floated second doped region being coupled to a capacitor, as recited in claim 60, is unclear as to how a doped region can be coupled to a capacitor (that is, a region having no external electrical connections) and still be electrically floating.

Claim Rejections - 35 USC ' 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 34, 44, 45, 53-54, 56-59, 61-64 and 69-74, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 102(b) as being anticipated by Ham (5,903,420).

Ham does not state whether the conductivity type of the substrate is an N type or P type. Both situations will be examined. Assume the substrate has an N (P) conductivity type. Ham teaches in figure 6 and related text (column 3, line 57 to column 4, line 41) an electrostatic discharge protection circuit coupled between a first node Vss (Vdd) and a second node Vdd (Vss), comprising a substrate 20 of a first conductivity type; a first doped region 48 (44) and a second doped region 50 (42) of a second conductivity type formed in the substrate, the first and second doped regions being spaced apart enabling a channel region (under gate 27b (27a)) formed in between;

a well region 22 (24) of the second conductivity type formed in the substrate;

a fourth doped region 44 (48) and a fifth doped region 40 (52) of the second conductivity type formed in the well region, the fourth doped region 44 (48) coupled to the first node, and

a third doped region 46 of the first conductivity type (note that the third doped region 46 can be an N or P conductive type (column 4, line 17)), electrically floated within the well region, wherein the third doped region 46 is electrically floated and is spaced apart from the fourth doped region 44 (48), the first node Vss (Vdd) is electrically coupled to the first doped region 48 (44) through the fourth doped region 44 (48), the well region and the fifth region 40

(52), and the second node Vdd (Vss) is electrically coupled to the second doped region 50 (42),

Regarding the claimed limitation of a first doped region and a second doped region of a second conductivity type formed in the substrate, doped regions 48 (44) and 50 (42) are formed in well 24 (22), which in turn is formed in the substrate. Therefore, doped regions 48 (44) and 50 (42) are formed in the substrate, as claimed.

Regarding the claimed limitation of a first doped region and a second doped region of a second conductivity type, and a fourth doped region and a fifth doped region of the second conductivity type, the broad recitation of the claim does not require the first and fourth doped regions to be of the second conductivity type.

Regarding claim 44, Ham teaches in figure 6 a third doped region 46 being spaced apart from the fourth doped region 44 (48).

Claims 34, 43, 45, 53-55, 57, 61 and 69-72, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 102(b) as being anticipated by Avery (5,343,053).

Avery teaches in figure 9 and related text a second circuit coupled between a second power line 45 and the pad 47 (see figure 13), comprising: a substrate 430 of a first conductivity type; a first doped region 444 and a second doped region

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438 of a second conductivity type formed in the substrate, the first and second doped regions being spaced apart enabling a channel region formed in between;

a well region 434 of the second conductivity type formed in the substrate;

a fourth doped region 448 and a fifth doped region 440 of the second conductivity type formed in the well region, the fourth doped region 448 coupled to the first node 47 (via resistor 448/434/440), and

a third doped region 436 of the first conductivity type electrically floated within the well region, wherein the third doped region 436 is electrically floated and is spaced apart from the fourth doped region 448, the first node 47 is electrically coupled to the first doped region 444 through the fourth doped region 448, the well region and the fifth region 440, and the second node 45 is electrically coupled to the second doped region 438.

Regarding the claimed limitation of a first doped region and a second doped region of a second conductivity type, and a fourth doped region and a fifth doped region of the second conductivity type, the broad recitation of the claim does not require the first and fourth doped regions to be of the second conductivity type.

Regarding claim 43, Avery teaches in figure 9 a third doped region 436 is electrically floating between the fourth doped region 448 and the fifth region 440.

9. Claims 38, 46-47 and 65-74 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu (5,686,751).

Wu teaches in figures 5 and 6 and related text an ESD protection circuit coupled between a first node and a second node, comprising: a first conductivity type substrate 200, a first doped region 214 and a second doped region 216 of a second conductivity type formed in the substrate 200, the first and second doped regions being spaced apart enabling a channel region formed in between,

a resistor constructed by a well region 220 of the second conductivity type disposed on the substrate, the resistor comprising a fourth doped region 224 and a fifth doped region 225 of the second conductivity type, the fourth doped region coupled to the first node, and

and a third doped region 223 of the first conductivity type deposited in the well region; and is coupled to the first node through a capacitor C2, the third doped region is spaced apart from the fourth doped region, wherein the first node is electrically coupled to the first doped region through the fourth doped region, the well region, and the fifth doped region, and the second node is electrically coupled to the second doped region 216.

Wu teaches a first doped region and a second doped region of a second conductivity type formed in the substrate, because the broad recitation of the claim does not preclude the first doped region and the second doped region to be formed in a well which in turn is formed in the substrate. Therefore, Wu teaches a first doped region and a second doped region of a second conductivity type formed in the substrate, as claimed.

Wu teaches a first node being electrically coupled to the first doped region and the well region, and a second node being electrically coupled to the second doped region, because in an electronic circuit the elements are electrically coupled to each other.

Regarding claims 46-47, Wu teaches in figure 6 a third doped region 223 disposed between the fourth 224 and the fifth 225 doped regions, and being spaced apart from the fifth doped region 225.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 3-4, 14, 34, 39, 41-42, 49-52, and 58-60, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ham (5,903,420) in view of Applicant Admitted Prior Art (AAPA).

Regarding claims 1, 31 and 39, Ham teaches substantially the entire claimed structure, as applied to claims 34, 44 and 45 above, including an ESD protection element being a MOSFET comprising a gate a drain coupled to the second end

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and a source coupled to the power line, wherein during an ESD event, the first doped region is coupled to the first end, and wherein the substrate is coupled to the second power line through a sixth doped region.

Ham does not teach using the device in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad.

AAPA teaches in figure 1 using the device in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Ham's device as a second circuit in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad in order to use the device in an application which requires an output buffer. Note that it is conventional to use in an output buffer, and the device would not operate without first and second power lines. Furthermore, the recitation of an output buffer which comprises first and second circuits coupled between first and second power lines and a pad occurs in the preamble. A

preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Moreover, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed

invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 39, the claimed limitations of a first doped region capacitively coupled to the pad is inherent in Ham's device, because capacitance exists between the power lines such that the first doped region is capacitively coupled to the pad, as claimed.

11. Claims 1, 3-4, 14, 34, 39, 40, 42 and 48, 50-52 and 60, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Avery (5,343,053) in view of Applicant Admitted Prior Art (AAPA).

Avery teaches in figure 9 and related text substantially the entire claimed structure, as applied to claims 34, 43 and 45 above, except using the device in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad.

AAPA teaches in figure 1 using the device in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Avery's device as a second circuit in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad in order to use the device in an application which requires

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an output buffer. Note that it is conventional to use in an output buffer, and the device would not operate without first and second power lines. Furthermore, the recitation of an output buffer which comprises first and second circuits coupled between first and second power lines and a pad occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Moreover, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 39, the claimed limitations of a first doped region capacitively coupled to the pad is inherent in Avery's device, because capacitance exists between the power lines 404 and 406 (see figure 13) such that the first doped region is capacitively coupled to the pad, as claimed.

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12. Claims 2 and 60, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (5,686,751) in view of Applicant Admitted Prior Art (AAPA).

Wu teaches in figures 5 and 6 and related text substantially the entire claimed structure, as applied to claim 38 above, except using the device in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad.

AAPA teaches in figure 1 using the device in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Wu's device as a second circuit in an output buffer which comprises first and second circuits coupled between first and second power lines and a pad in order to use the device in an application which requires an output buffer. Note that it is conventional to use in an output buffer, and the device would not operate without first and second power lines. Furthermore, the recitation of an output buffer which comprises first and second circuits coupled between first and second power lines and a pad occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Moreover, a recitation of the intended

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use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Response to Arguments

13. Applicant argues that doped region 46 of Ham is not within well region 22 or 24, because doped region 46 extends outside the well region.

Although doped region 46 extends outside the well region, doped region 46 is still located within well region 22 or 24. The broad recitation of the claim does not require the entire doped region to be located inside the well region.

14. The rest of applicant's arguments with respect to claims 1-4, 14, 34 and 38-74 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is

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(703) 308-8138. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

A handwritten signature in black ink, appearing to read 'Ori Nadav', with a stylized, flowing script.

O.N.
January 7, 2004

ORI NADAV
PATENT EXAMINER
TECHNOLOGY CENTER 2800